

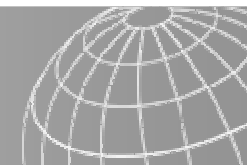
CRITERIA and *FACTORS* for the sustainability

of the dissemination of improved cook stoves

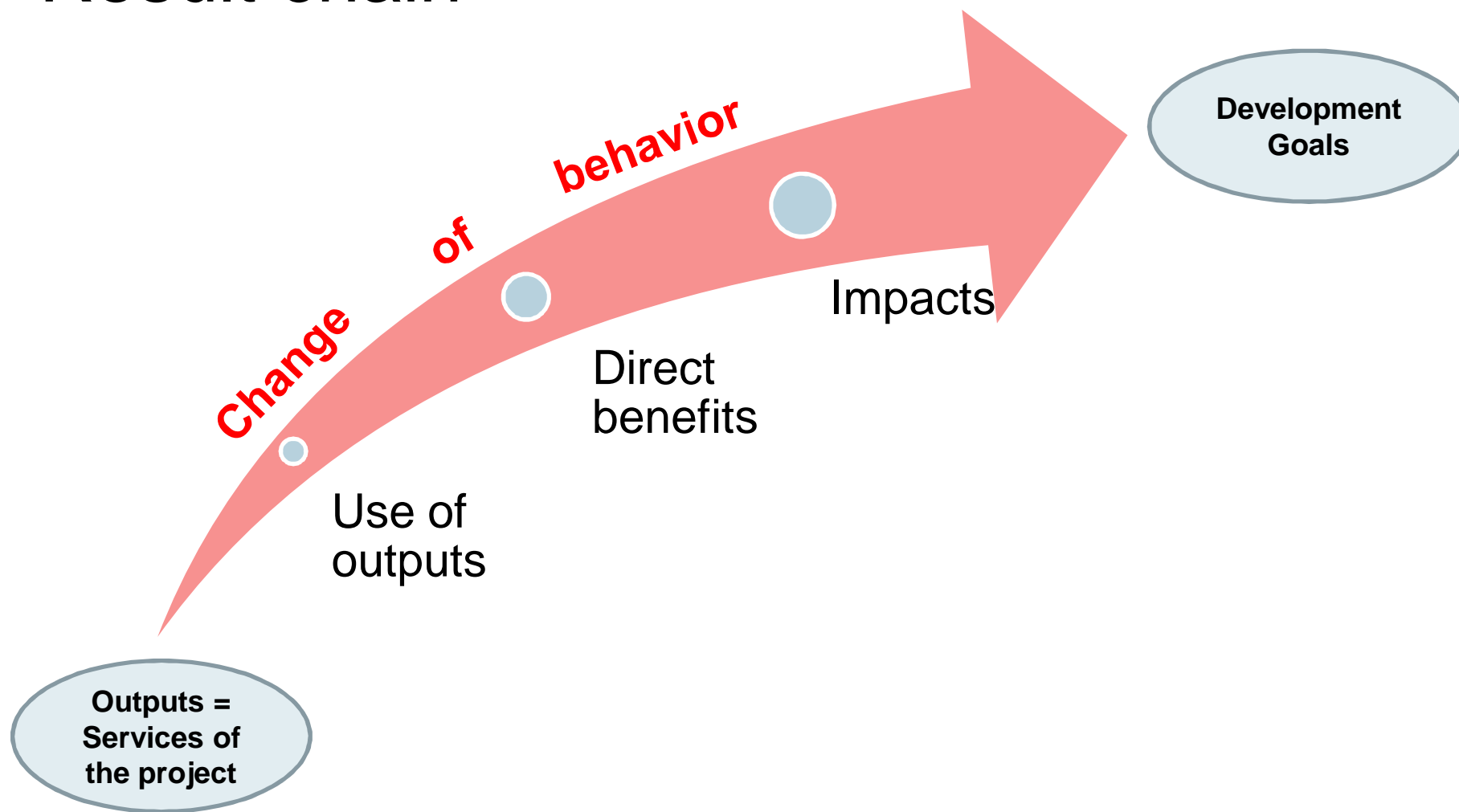


Melanie Djedje and Christoph Messinger

Energie Fachtagung “Im Abseits der Netze”, Bonn, 10-12/01/ 2011

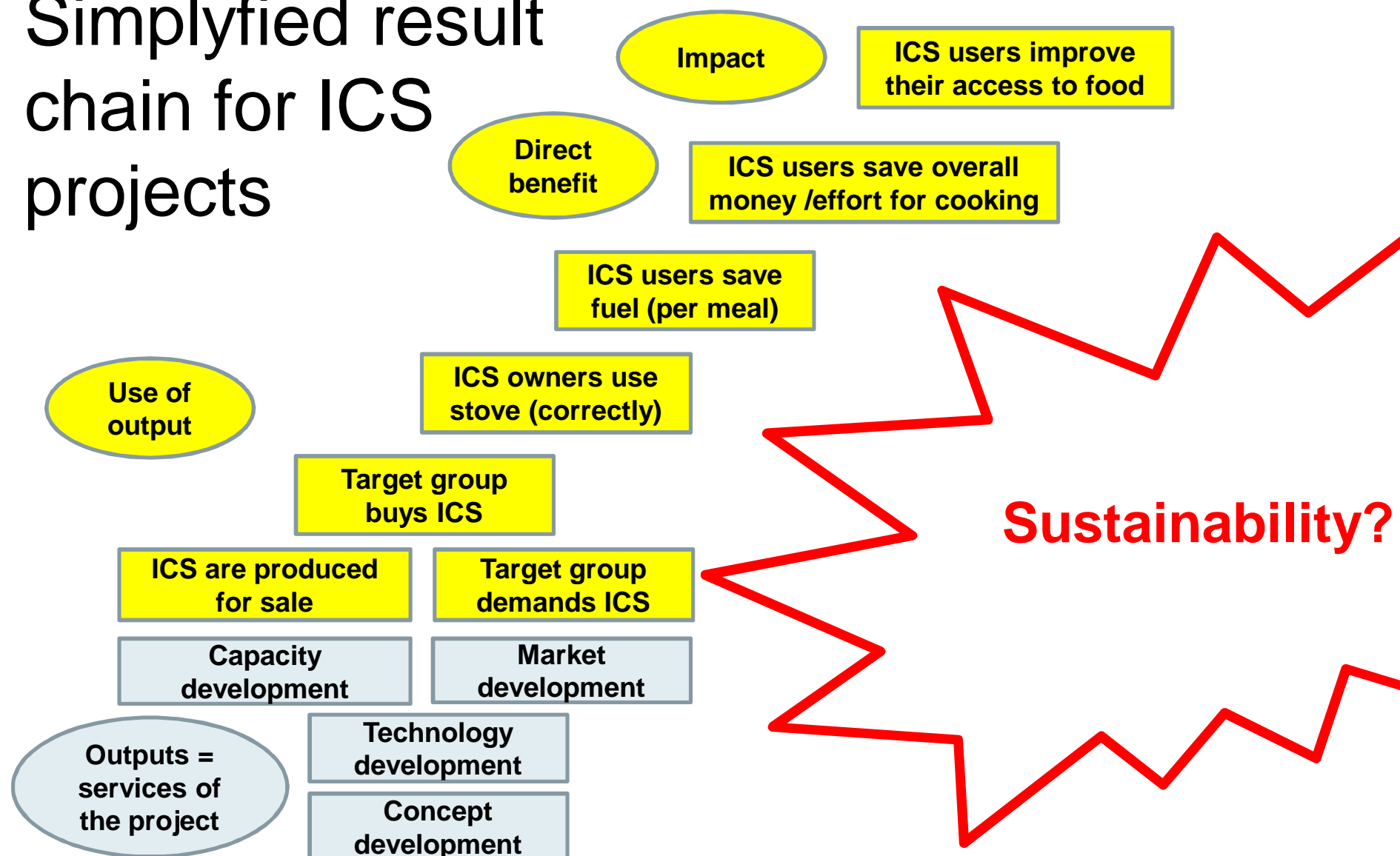


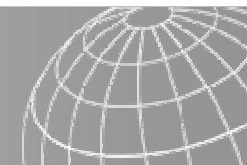
Result chain



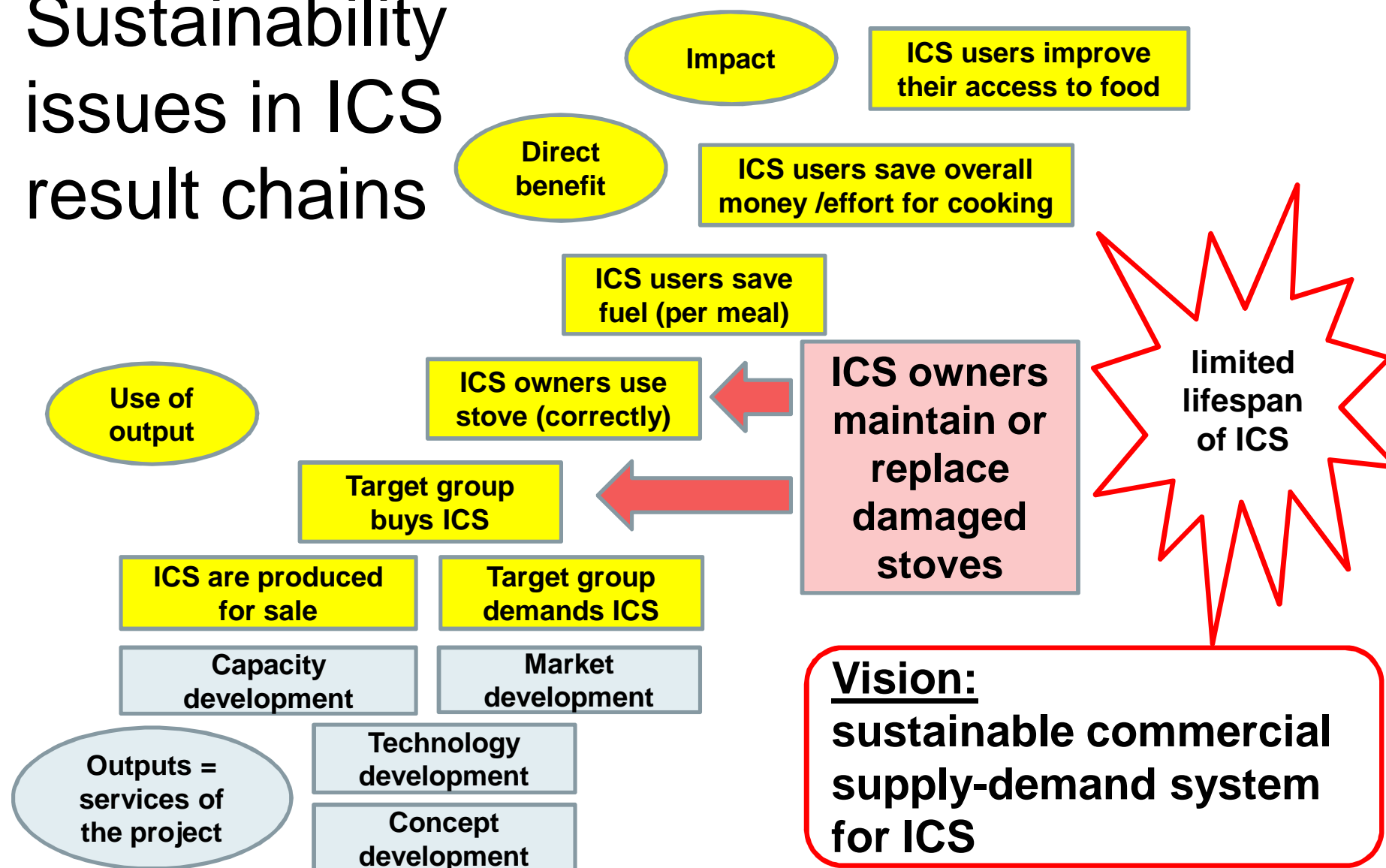


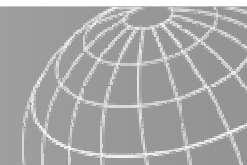
Simplified result chain for ICS projects



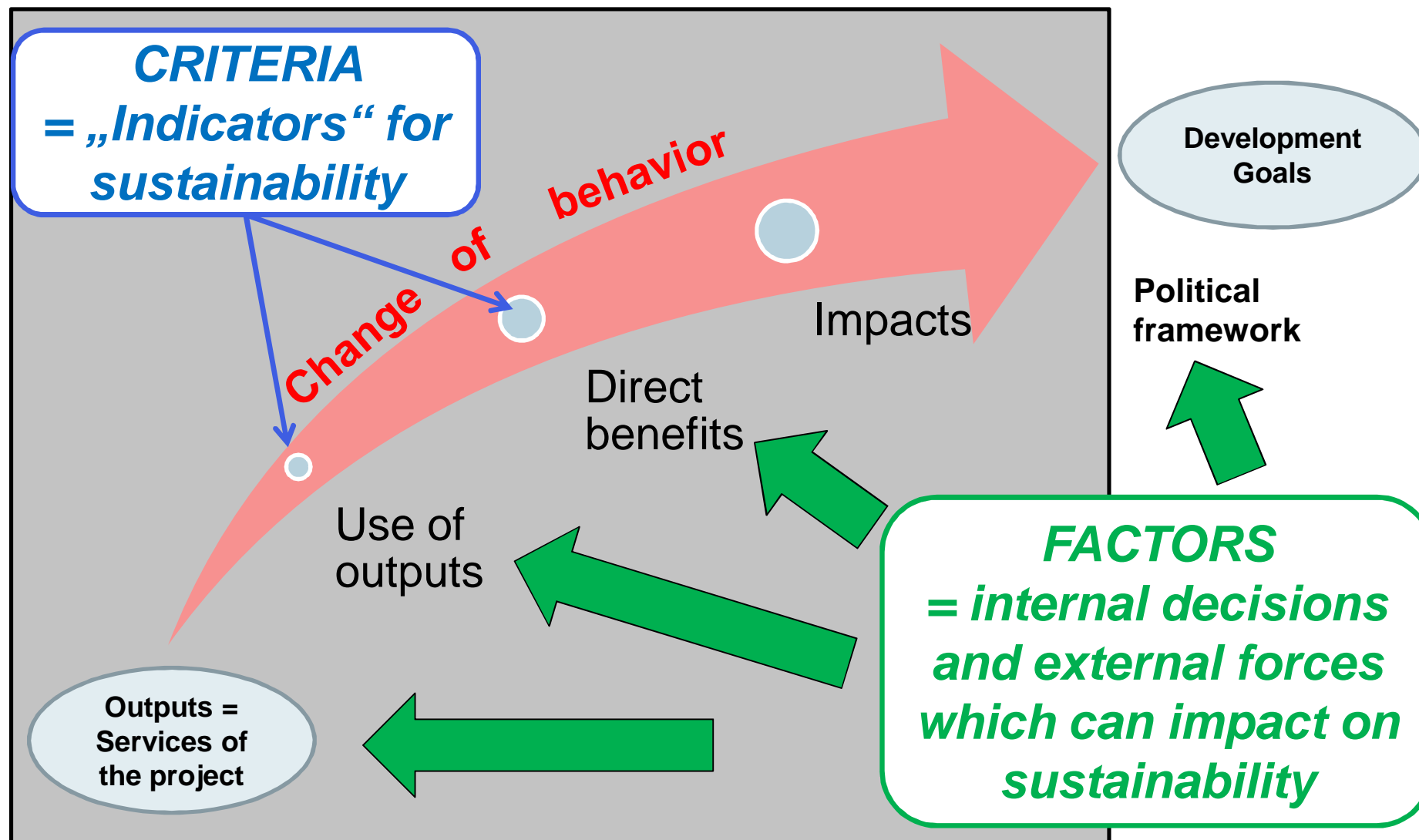


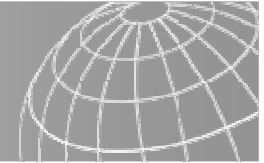
Sustainability issues in ICS result chains



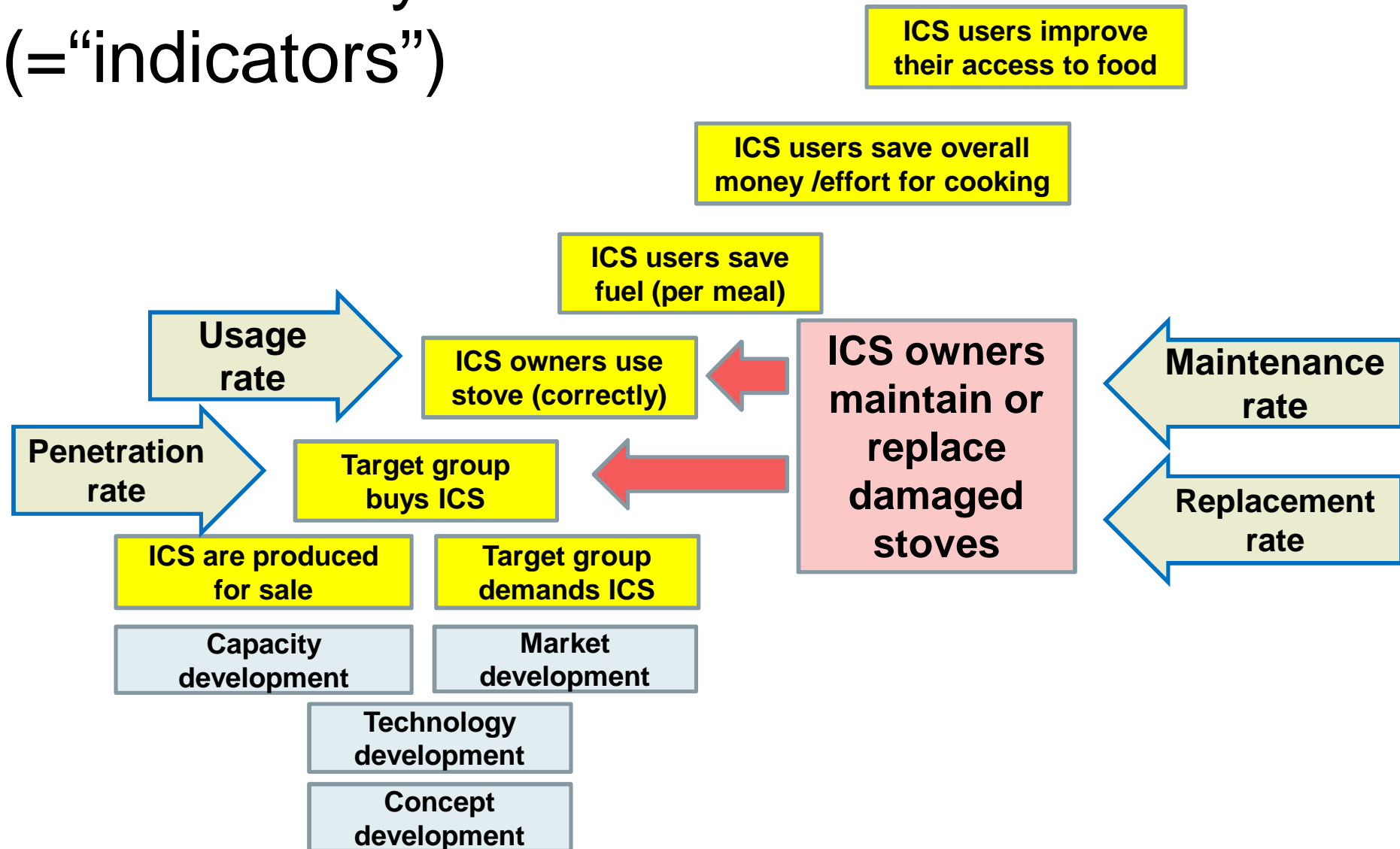


Difference between **CRITERIA** and **FACTOR**



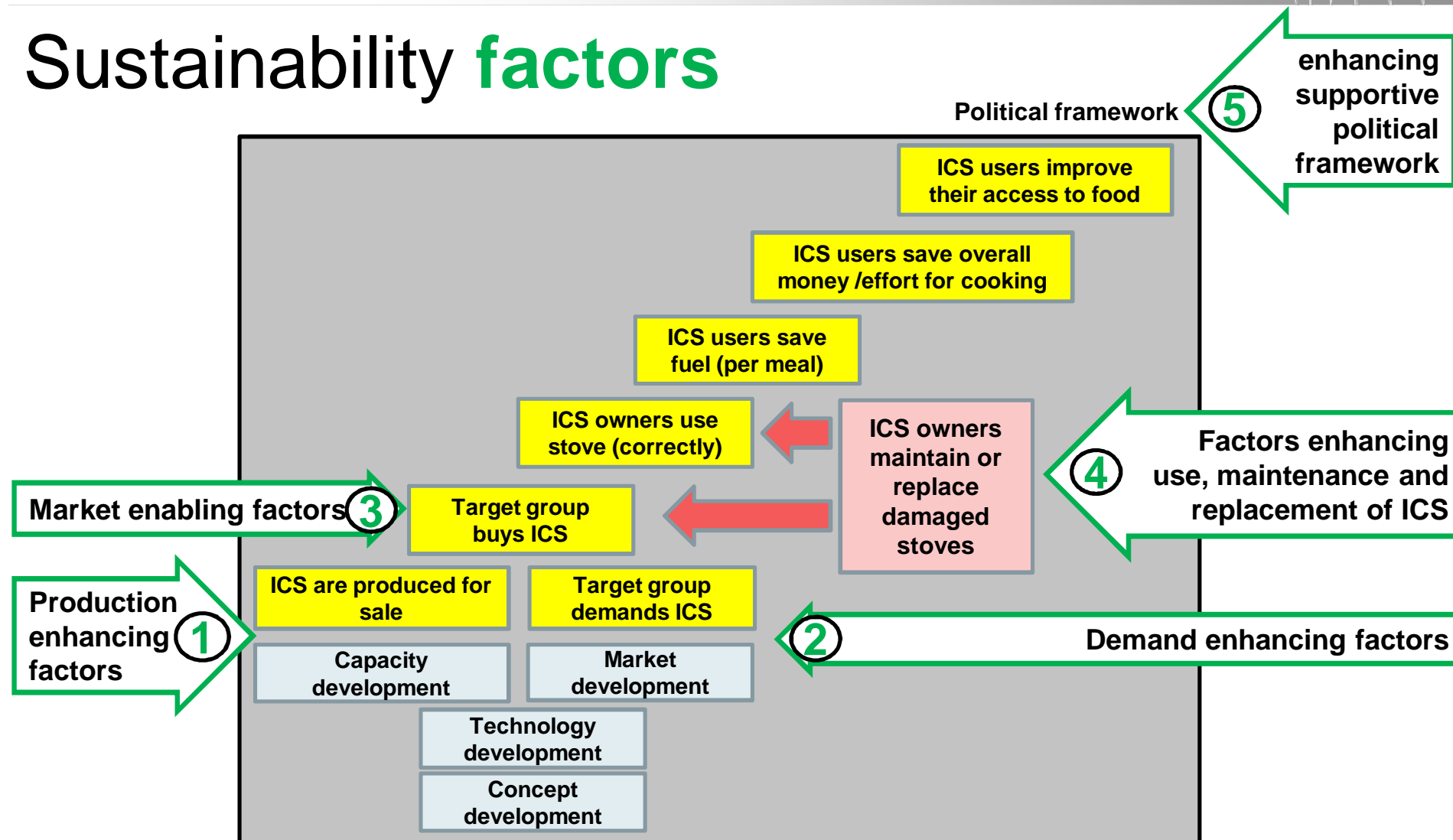


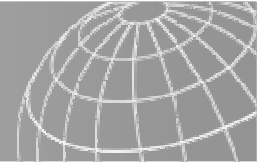
Sustainability **criteria** (=“indicators”)





Sustainability **factors**

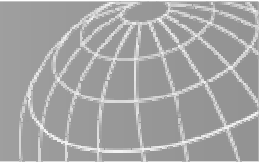




Sustainability **factors 1:**

Factors which influence ICS producers to continue producing and selling ICS

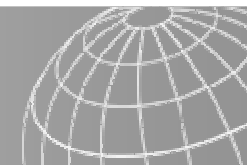
- Stove production and sales/trade is profitable
(Price covers costs and creates profit for every actor in the stove value chain);
- Stove producers and sales persons feel responsible for own business (ownership);
- Low vulnerability of input supply (access to raw materials);
- Availability of access to (micro-) credits for producers;
- Knowledge-base and –transfer of all actors of the ICS value chain (technical skills, business skills...) ;



Sustainability **factors 2:**

Factors which promote continued high demand for ICS from target households

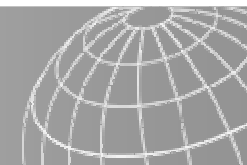
- High/increasing “problem pressure” promotes continuous high demand for ICS (e.g. commercial/high risk access to fuel);
- ICS is convenient to use (e.g. lighting, size of fuel, trad. cooking habits);
- Positive perception (image) of ICS by target group:
 - better performance than baseline stove;
 - Appealing design (e.g. modern, attractive...);
 - Purchase/installation is “affordable” (e.g. payback time 1-3 months; low risk credit scheme available)



Sustainability **factors 3:**

Factors which avoid market distortion

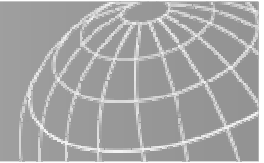
- Government takes no role in production or sales of ICS;
- No direct (cash) subsidy for producers and on stove price;
- Subsidies only in combination with clear exit strategy;



Sustainability **factors 4:**

Factors which encourage ICS users to use, maintain and replace their stoves

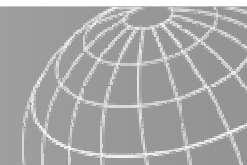
- Users realize (observe) the benefits of using ICS:
 - ICS performs better than baseline stove (e.g. saves fuel and time, reduces emissions and effort, increase safety based on tests based on standardized methodologies);
 - Living conditions of women have improved;
 - Users can assess benefits of ICS use themselves and consider them as relevant for themselves;
- ICS maintenance services are available, accessible and affordable (if applicable);



Sustainability **factors 4** continued:

Factors which encourage ICS users to use, maintain and replace their stoves

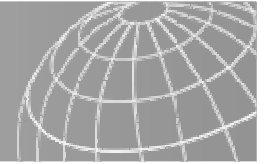
- Replacement of ICS is accessible and affordable;
- ICS have a reliable (good) quality (performance, durability):
 - e.g. (semi-) industrial “mass-production” of stoves or critical stove parts;
 - e.g. long term autonomous quality control;
- Consumer price is reliable and affordable
 - Public subsidies to ICS only with clear exit strategy and for products with a long term viable market;
 - Competition between producers



Sustainability **factors 5:**

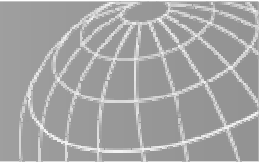
Factors which enhance a supportive political framework for the ICS promotion

- Perception of “cooking energy” by politicians
(perceived as relevant topic for domestic politics);
- Reflection of cooking energy in national policies and strategies (energy, environment, health, education and other sectors);
- Regulative mechanisms are supportive for a sustainable stove market:
 - e.g. reduced taxation (including import tax) on ICS value chain;
 - e.g. no subsidy on stove price / clear exit strategy on other subsidies;
 - e.g. relevant quality standards are applied and monitored



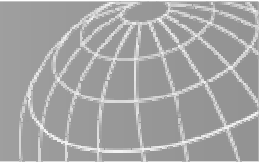
Next steps:

- Monitoring methodology for sustainability assessment;
- Identification of activities to enhance sustainability of ICS interventions;

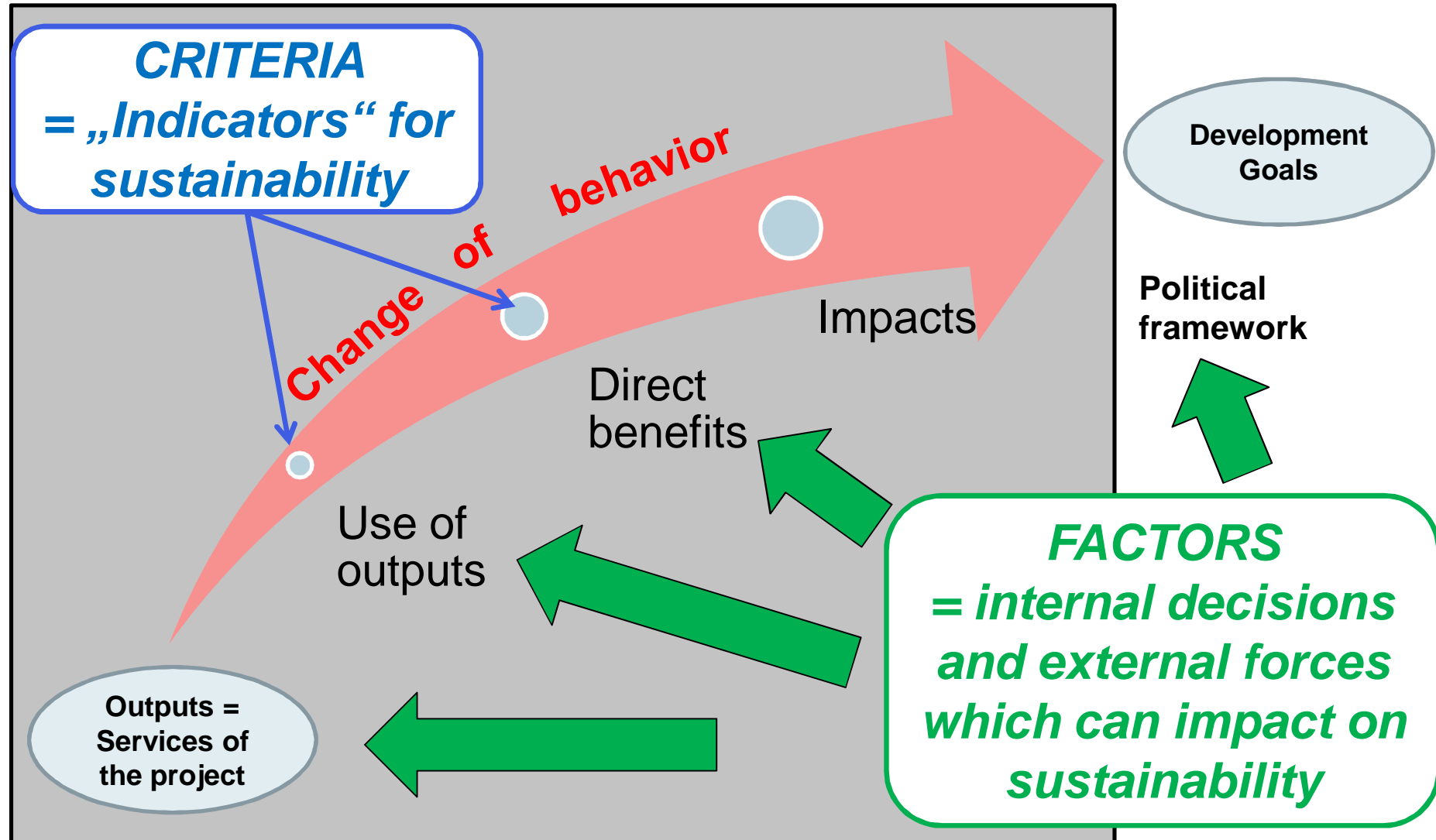


Thank you !

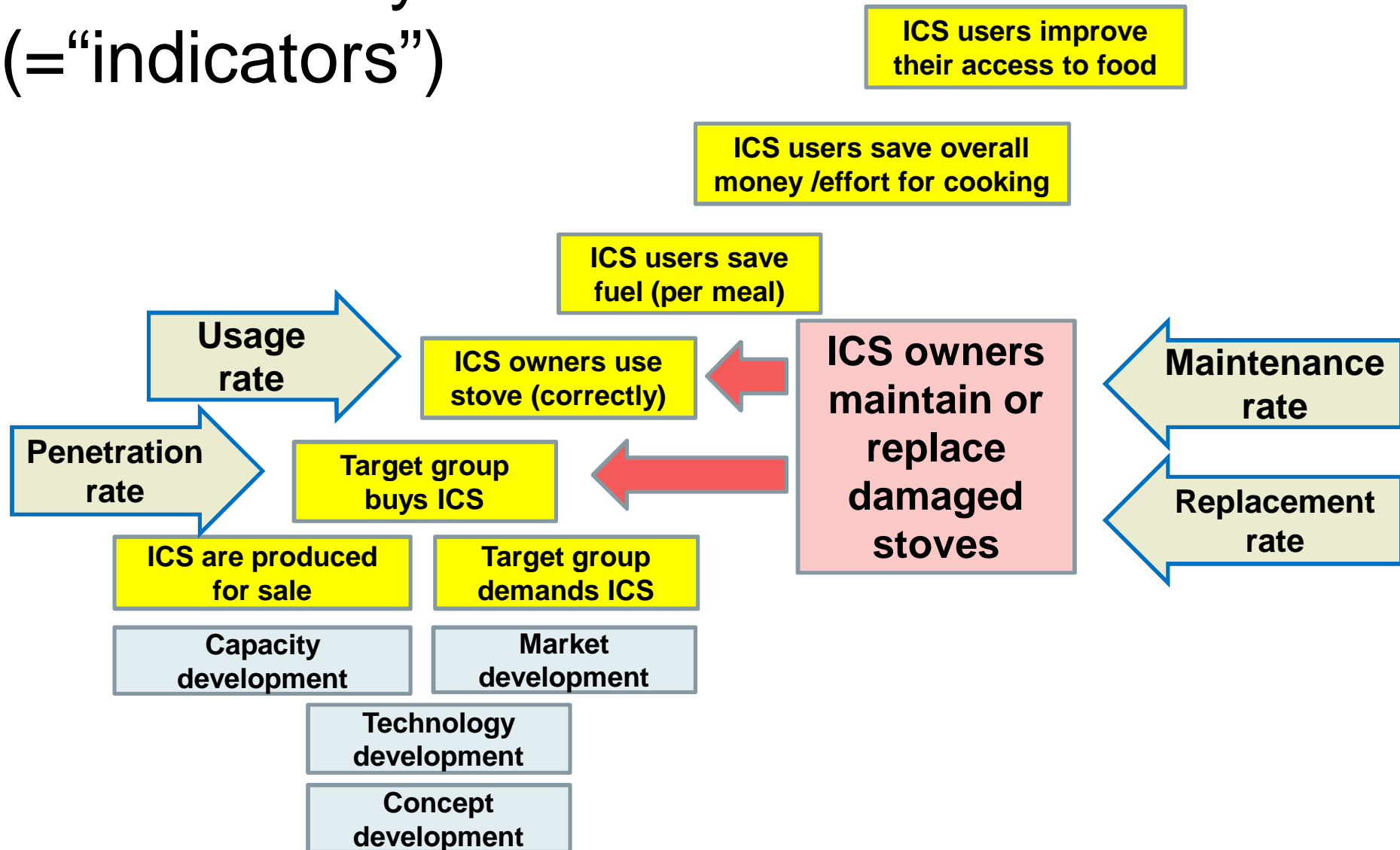


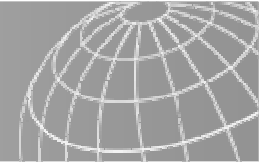


Difference between **CRITERIA** and **FACTOR**



Sustainability **criteria** (=“indicators”)

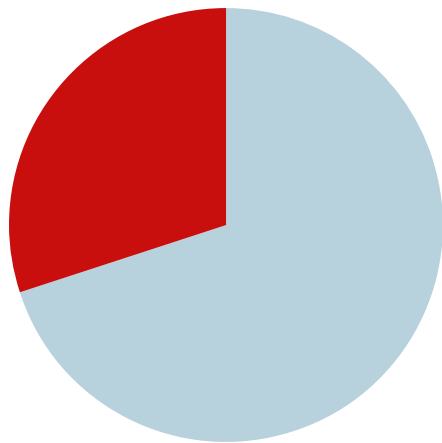




Explanation of “penetration rate”

Idea:

the higher the penetration of ICS amongst the target group, the more sustainable is the achievement (self-sustaining market; motivation through example by others)...

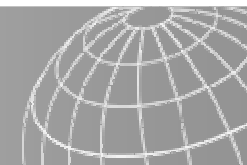


■ 1 ICS owner
■ 2 NON-ICS owner

} Total sample size

Penetration rate:

$$[(\text{ICS owners} \times 100) / \text{total sample size}]$$

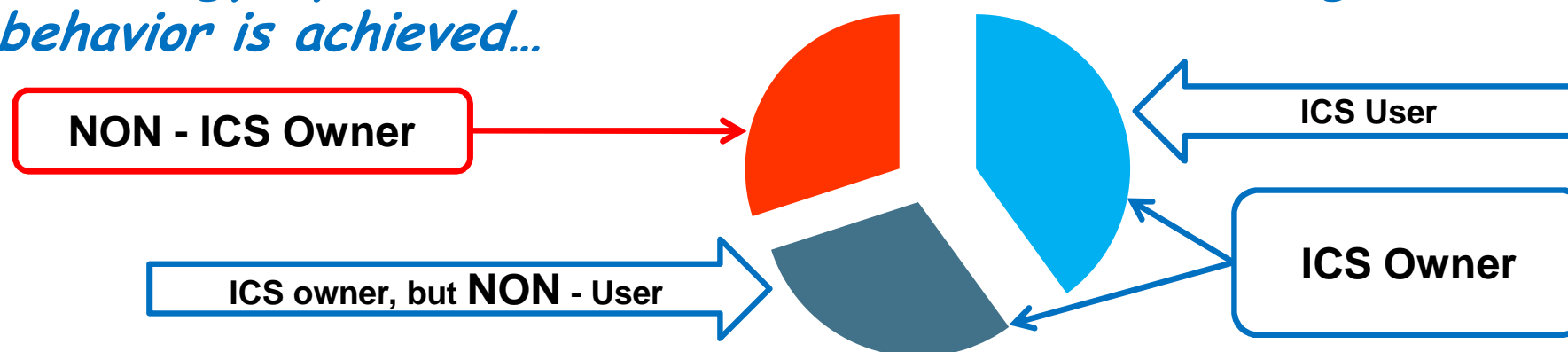


Explanation of “usage rate”

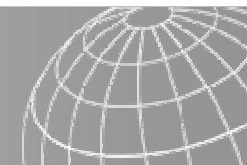
Idea:

Experience shows that some households acquire an ICS for other reasons than its usage. Hence the ICS ownership alone is not a reliable indicator for the sustainability of the behavioral change.

The higher the usage of the ICS, the more accepted is the technology by the users; hence a more durable change of behavior is achieved...

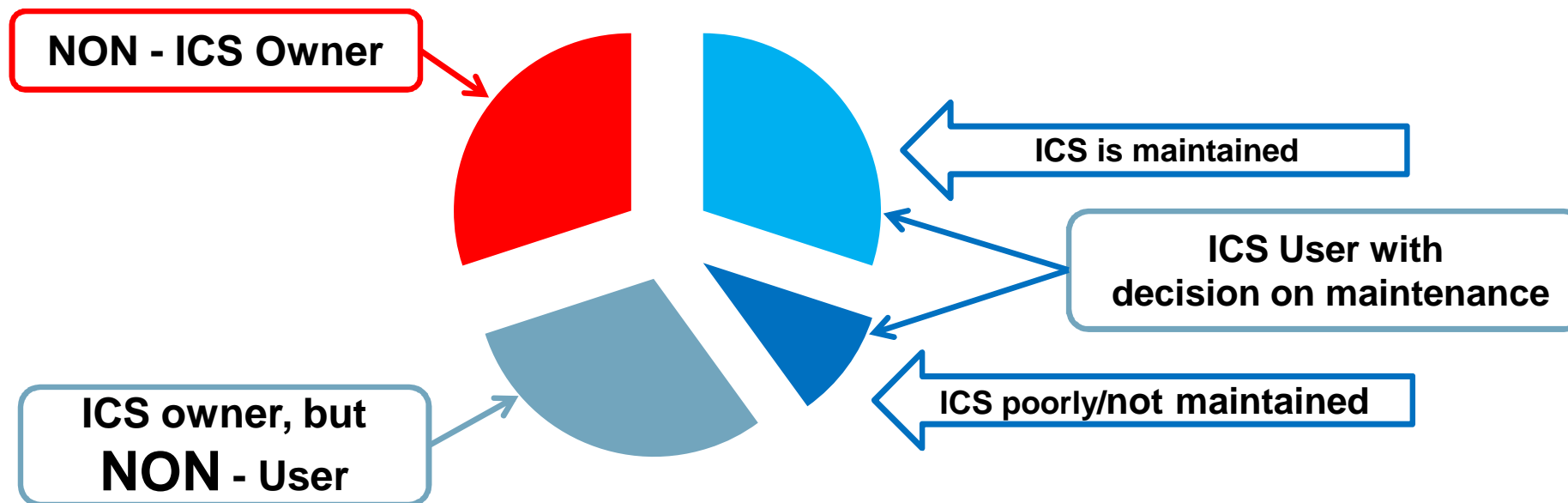


$$\text{Usage rate: } [(ICS \text{ users} \times 100) / ICS \text{ owners}]$$



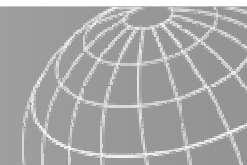
Explanation of “maintenance rate”

Idea: if damaged stoves are mostly well maintained, it shows appreciation by the users and a preparedness to invest resources into the preservation of the ICS ...



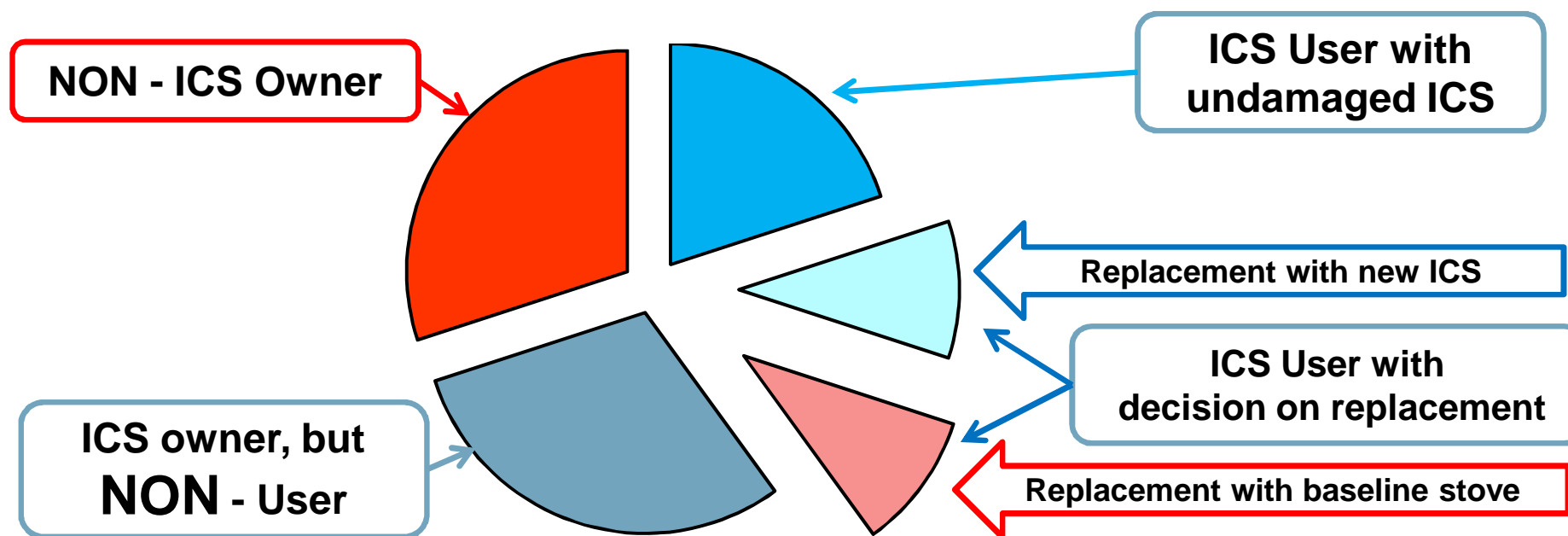
Maintenance rate:

$$[(\text{ICS maintained} \times 100) / (\text{ICS user with decision on maintenance})]$$



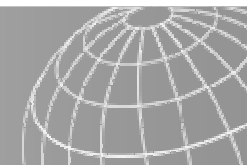
Explanation of “replacement rate”

Idea: if an ICS is damaged beyond repairs, the household is exposed to the ultimate sustainability test: going back to the baseline stove or replacing the old ICS with a new one.



Replacement rate:

$$[(\text{ICS replacement hh} \times 100) / (\text{hh with replacement decision})]$$



(How) Can these criterias be applied for different household energy technologies?

	Penetration Rate	Usage Rate	Maintenance Rate	Replacement Rate
ICS				
Solar Home systems				
Mini grids (solar, hydro...)				
Solar lanterns				
Solar Battery Charging station				